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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,196	07/15/2003	Yehoshua Shachar	MNETEC.001A	2337

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KNOBBE MARTENS OLSON & BEAR LLP  
2040 MAIN STREET  
FOURTEENTH FLOOR  
IRVINE, CA 92614

EXAMINER
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NGUYEN, HUONG Q

ART UNIT	PAPER NUMBER
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3736

NOTIFICATION DATE	DELIVERY MODE
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08/25/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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eOAPilot@kmob.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/621,196	<b>Applicant(s)</b> SHACHAR, YEHOASHUA	
	<b>Examiner</b> HELEN NGUYEN	<b>Art Unit</b> 3736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 39-43 and 45-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 39-43 and 45-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :12/17/2008, 4/9/2009, 8/3/2009, and 8/12/2009.

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### **DETAILED ACTION**

1. This Office Action is responsive to the amendment filed 4/9/2009. Claim 39 is amended. Claims **39-43 and 45-47** remain pending and under prosecution.

#### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 12/17/2008, 4/9/2009, 8/3/2009, and 8/12/2009 is/are acknowledged. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. In the IDS dated 8/3/2009, it is noted that the foreign patent documents that have crossed out have not been considered because an English abstract has not been provided.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 39, 42 and 45** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall et al (US Pat No. 6298257) in view of Nowlin et al (US Pat No. 6459926).

5. Hall et al disclose an apparatus for controlling movement of a tool to be inserted into the body of a patient, comprising:

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a controllable magnetic field source 44 having a first cluster of electromagnet poles and a second cluster of electromagnet poles (set of magnet coils - Col.5: 21-28, 34-36), wherein it is known that said first cluster of poles is substantially opposed to said second cluster of poles, best seen in Figure 1;

a tool 22 having a distal end 24 responsive to said magnetic field, best seen in Figure 1;

one or more sensors 38, 40 configured to sense a current position of said distal end, best seen in Figure 1 (Col.5: 49-51);

system controller 26, 42 for controlling said magnetic field source (Col.5: 16-18) to control a movement of said distal end according to a feedback calculation (Col.9: 57-61) wherein said system controller computes a position error as a difference (Col.6: 9-24) between a desired position of said distal end (angle theta not zero, best seen in Figure 2, to maintain contact with the heart) and said current position of said distal end compensated by data from an auxiliary device 46 that measures a position of a heart relative to a frame of reference 48 (Col.6: 27-43; Col.9: 19-23), such that said system controller computes said position error to compensate for a dynamic position of a wall of a heart chamber such that said distal end moves substantially in unison with a natural motion of the said wall (Col.3: 56-58), best seen in Figure 1;

a user control device 32 (joystick) to provide user inputs to said system controller, best seen in Figure 1, wherein said system controller determines when said position error exceeds a predetermined value (i.e. characteristic lag angle - Col.6: 49-52) while simultaneously compensating for said dynamic position as said distal end moves substantially in unison with a natural motion of said wall (Col.6: 44-53).

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In regards to **claim 42**, the apparatus comprises an operator interface unit 28, 30, 34, best seen in Figure 1.

6. However, Hall et al do not disclose the system controller computes an amount of tactile feedback according to the position error and does expressly disclose a Virtual Tip Calibration Fixture. Nowlin teaches computing an amount of tactile feedback according to a position error (column 19, lines 23-67) so that the master and slave controllers are in corresponding positions. Furthermore, the feedback will tactilely notify a surgeon that the surgical tool has encountered resistance to movement in a desired direction (column 19, last paragraph). In regards to claim **45**, Nowlin further teaches a Virtual Tip Calibration Fixture (200).

7. Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to have modified the system controller of Hall et al to compute an amount of tactile feedback according to the position error such as when said position error exceeds a predetermined amount and to have used a calibration fixture as taught by Nowlin in order to ensure that the position of the user control device corresponds to the internal position of the tool and to notify a surgeon with resistance to movement in a particular direction.

8. **Claims 40 and 41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall et al as modified by Nowlin et al, as applied to claims 39, 42 and 45 above, and further in view of Solf et al. (US 6,587,709).

9. Hall et al in combination with Nowlin et al do not expressly disclose one or more piezoelectric rings.

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10. Solf teaches using piezoelectric rings (10a, 10b, 10c) with an ultrasound emitter (1) for the purpose of automatically tracking a catheter tip without manual displacement of an ultrasound transducer (abstract; column 2, lines 39-46).

11. Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to have used piezoelectric rings as taught by Solf in the apparatus of Hall et al as modified by Nowlin et al in order to automatically and accurately track a catheter tip at all times.

12. **Claim 43** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hall et al in view of Nowlin et al, as applied to claims 39, 42 and 45 above, and further in view of Hastings (US 6,148,823).

13. Hall et al in combination with Nowlin et al do not expressly disclose that the first cluster of poles is connected to said second cluster of poles by a magnetic material.

14. Hastings teaches that magnetic poles can be connected by magnetic material for the purpose of providing a strong field for a given magnet cost (column 3, lines 39-42).

15. It would have been obvious to one having ordinary skill in the art at the time of invention to have connected the clusters of poles of Hall et al as modified by Nowlin et al with magnetic material as taught by Hastings in order to provide a stronger field for a given magnet.

16. **Claims 46 and 47** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hall et al in view of Nowlin et al, as applied to claims 39, 42 and 45 above, and further in view of Haynor et al. (US 6,129,668) and Tanabe et al. (US 5,550,469).

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17. Hall et al further discloses a communication controller 26. However, Hall et al as modified by Nowlin et al do not expressly disclose one or more magnetic field sensors.

18. Haynor teaches one or more Hall-effect magnetic sensors to sense a position of a tool by sensing a magnetic field produced at the tool for the purpose of obviating the need to independently verify positioning with imaging equipment (column 2, lines 42-47).

19. It would have been obvious to one having ordinary skill in the art at the time of invention to have used one or more magnetic sensors as taught by Haynor in the apparatus of Hall et al as modified by Nowlin et al in order to determine the position of an indwelling tool without the need for imaging equipment.

20. Hall et al as modified by Nowlin et al and Haynor do not expressly disclose one or more temperature sensors.

21. Tanabe teaches a temperature-dependent variable resistor which is considered a temperature sensor for the purpose of compensating the temperature dependence of Hall-effect sensors (abstract). The temperature sensor is paired with magnetic sensors.

22. Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to have paired temperature sensors as taught by Tanabe with the Hall-effect sensors of Hall et al as modified by Nowlin et al and Haynor in order to compensate for the temperature dependence of Hall-effect sensors.

### ***Response to Arguments***

23. Applicant's arguments with respect to claims 39-43 and 45-47 have been considered but are moot in view of the new ground(s) of rejection.



***Conclusion***

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HELEN NGUYEN whose telephone number is (571)272-8340. The examiner can normally be reached on Monday - Friday, 9 am - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on 571-272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. N./

Examiner, Art Unit 3736

/Max Hindenburg/

Supervisory Patent Examiner, Art Unit 3736